Appendix B

Table B

Form and benefit of cationic nutrients

Metals	Metal form	Benefits
N	NO_3^-, NH_4^+	- A part of all living cells and is a necessary part of all proteins, enzymes and metabolic processes involved in the synthesis and transfer of energy. - A part of chlorophyll, the green pigment of the plant that is responsible for photosynthesis. - Helps plants with rapid growth, increasing seed and fruit production and improving the quality of leaf and forage crops.
P	$H_2PO_4^-$, HPO_4^{2-}	- An essential part of the process of photosynthesis involved in the formation of all oils, sugars, starches. - Helps with the transformation of solar energy into chemical energy; proper plant maturation; withstanding stress and effects rapid growth and encourages blooming and root growth
K	K^+	- Absorbed by plants in larger amounts than any other mineral element except nitrogen and, in some cases, calcium. - Helps in the building of protein, photosynthesis, fruit quality and reduction of diseases
Ca	Ca^{2+}	- An essential part of plant cell wall structure, provides for normal transport and retention of other elements as well as strength in the plant. It is also thought to counteract the effect of alkali salts and organic acids within a plant.

Table B (Continued)

Metals	Metal form	Benefits
Mg	Mg^{2+}	- A part of the chlorophyll in all green plants and essential for photosynthesis. It also helps activate many plant enzymes needed for growth.
S	SO_4^{2-}	- Essential plant food for production of protein. - Promotes activity and development of enzymes and vitamins. -. Improves root growth and seed production. - Helps with vigorous plant growth and resistance to cold and helps in chlorophyll formation.
Fe	Fe^{2+}, Fe^{3+}	- Essential for formation of chlorophyll
Zn	Zn^{2+}	- Essential for the transformation of carbohydrates. - Regulates consumption of sugars.
Mn	Mn^{2+}	- Functions with enzyme systems involved in breakdown of carbohydrates, and nitrogen metabolism.
Cu	Cu^{2+}	- Important for reproductive growth. - Helps in root metabolism and helps in the utilization of proteins.
B	H_3BO_3	- Helps in the use of nutrients and regulates other nutrients. - Produces of sugar and carbohydrates. - Essential for seed and fruit development.
Cl	Cl^-	- Helps plant metabolism and for growth of root and sprout and produces of sugar.
Mo	MoO_4^{2-}	- Helps in the use of nitrogen.